

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-21 (Canceled)

Claim 22 (Currently Amended): An electrical impedance cell sizing counting apparatus for counting and characterizing particles suspended in a liquid, comprising:

a housing with a mixing chamber and a collection chamber separated by a polymer membrane containing an orifice for passage of the particles between the mixing chamber and the collection chamber for impedance determination of the particles, wherein a diameter of the orifice is in a range from 10 μm to 1,000 μm ; and
a volume meter that determines a period during which a fixed volume of the liquid passes through the orifice.

Claim 23 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein the orifice has rounded edges at one of the sides of the membrane whereby perturbations of an electrical field at an orifice entrance are minimized and a substantially homogenous electrical field at the center of the orifice is

provided.

Claim 24 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 23, wherein a radius of curvature of the rounded edges is substantially equal to $\frac{1}{4}$ th the diameter of the orifice.

Claim 25 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein a surface roughness of an internal surface of the orifice is in a range from 0 μm to 5 μm , whereby a substantially homogenous electrical field at a center of the orifice is provided.

Claim 26 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein the orifice diameter is in a range from 30 μm to 75 μm .

Claim 27 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein the orifice diameter is 50 μm .

Claim 28 (Currently Amended): An electrical impedance cell sizing counting apparatus

according to claim 22, wherein a length of the orifice ranges from 1 μm to 1000 μm .

Claim 29 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein the membrane is positioned in a single-use cartridge.

Claim 30 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, further comprising:

a bore in an outer surface of the housing for entrance of a liquid sample, communicating with

a sampling member positioned in the housing for sampling the liquid sample and having a cavity for receiving and holding the liquid sample, the sampling member being movably positioned in relation to the housing in such a way that in a first position the cavity is in communication with the bore for entrance of the liquid sample into the cavity, and in a second position the cavity is in communication with the mixing chamber for discharge of the liquid sample into the mixing chamber.

Claim 31 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein deviation of the orifice diameter along a longitudinal axis of the orifice ranges from +/- 1% to +/- 10%, whereby a substantially homogenous

electrical field is provided at a center of the orifice.

Claim 32 (Currently Amended): An electrical impedance cell sizing counting apparatus according to claim 22, wherein a largest cross-sectional dimension of the orifice is from 10 μm to 50 μm .

Claim 33 (New): An electrical impedance cell counting apparatus for counting and characterizing particles suspended in a liquid, comprising:

a housing with a mixing chamber and a collection chamber separated by a polymer membrane containing an orifice for passage of the particles between the mixing chamber and the collection chamber for impedance determination of the particles,

wherein a diameter of the orifice is in a range from 10 μm to 1,000 μm , and wherein a diameter of the particles is not greater than 60 percent of the diameter of the orifice.

Claim 34 (New): An electrical impedance cell counting apparatus according to claim 33, wherein the orifice has rounded edges at one of the sides of the membrane whereby perturbations of an electrical field at an orifice entrance are minimized and a substantially homogenous electrical field at the center of the orifice is provided.

Claim 35 (New): An electrical impedance cell counting apparatus according to claim 34, wherein a radius of curvature of the rounded edges is substantially equal to $\frac{1}{4}$ th the diameter of the orifice.

Claim 36 (New): An electrical impedance cell counting apparatus according to claim 33, wherein a surface roughness of an internal surface of the orifice is in a range from 0 μm to 5 μm , whereby a substantially homogenous electrical field at a center of the orifice is provided.

Claim 37 (New): An electrical impedance cell counting apparatus according to claim 33, wherein the membrane is positioned in a single-use cartridge.

Claim 38 (New): An electrical impedance cell counting apparatus according to claim 33, further comprising:

a bore in an outer surface of the housing for entrance of a liquid sample, communicating with

a sampling member positioned in the housing for sampling the liquid sample and having a cavity for receiving and holding the liquid sample, the sampling member being movably positioned in relation to the housing in such a way that in a first position the

cavity is in communication with the bore for entrance of the liquid sample into the cavity, and in a second position the cavity is in communication with the mixing chamber for discharge of the liquid sample into the mixing chamber.

Claim 39 (New): An electrical impedance cell counting apparatus of claim 33, wherein the diameter of the particles is between 5 to 25 percent of the diameter of the orifice.

Claim 40 (New): An electrical impedance cell counting apparatus of claim 33, further comprising a volume meter that determines a period during which a fixed volume of the liquid passes through the orifice.

Claim 41 (New): A single-use disposable electrical impedance cell counting cartridge for counting and characterizing particles suspended in a liquid, comprising a housing with a mixing chamber and a collection chamber separated by a polymer membrane containing an orifice for passage of the particles between the mixing chamber and the collection chamber for impedance determination of the particles, wherein a diameter of the orifice is in a range from 10 μm to 1,000 μm .

Claim 42 (New): A single-use disposable electrical impedance cell counting cartridge of

claim 41, further comprising a volume meter that determines a period during which a fixed volume of the liquid passes through the orifice.